Appl. No.: 09/741,747
Amdt. Dated: 07/26/2004
Off. Act. Dated: 03/25/2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-3 (canceled)

4. (currently amended): A method for determining the loss rate of a traffic source, comprising:

transmitting the frames of an actual or simulated traffic source into a peak-rate shaper having an input queue mechanism and producing a new time sequence for the bit-stream of the input traffic source as output traffic at rate r;

collecting the bit-stream at the output of the peak-rate shaper $a(r,t)$ into a leaky-bucket shaper, said traffic source at said output having a transmission rate ρ and a buffer of size B;

recording busy periods of the traffic source at rate ρ received in buffer of size B;

recording buffer points at which loss occurs for each busy period recorded; and

determining the maximum loss for buffer size B at rate ρ.

5. (original): A method as recited in claim 4, further comprising plotting a loss rate curve for a desired range of buffer sizes B of interest by executing additional iterations to determine maximum loss rate across the range of buffer sizes.

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6. (currently amended): A method of determining loss rate for a traffic source at a given rate ρ received in a buffer of size B, comprising:

transmitting the frames of an actual or simulated traffic source into a peak-rate shaper having an input queue mechanism, and producing a new time sequence for the bit-stream of the input traffic source within an output traffic of rate r;

collecting the bit-stream at the output of the peak-rate shaper $a(r,t)$ into a leaky-bucket shaper, said traffic source at said output having a transmission rate ρ and a buffer of size B;

determining the set of active periods and associated queue lengths for the frames of the traffic source at rate ρ;

determining busy periods for rate ρ and buffer size B; and

iteratively examining the busy periods to determine points of loss and busy period breaks for the given buffer size B; and

outputting maximum detected loss rate.

7. (new): A method as recited in claim 4, wherein the traffic source comprises a data stream selected from the group of data streams consisting of multimedia data streams, elementary video streams, and MPEG-2 transport streams.

8. (new): A method as recited in claim 6, wherein the traffic source comprises a data stream selected from the group of data streams consisting of multimedia data streams, elementary video streams, and MPEG-2 transport streams.

9. (new): A method as recited in claim 6, wherein piecewise linearity is exploited between arising points of loss and busy period breaks to define a loss curve indicating loss rate versus buffer size B for a given value of transmission rate ρ.

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10. (new): A method as recited in claim 9, further comprising computing loss curves across a range of given transmission rates ρ, to provide three-dimensional information about losses with respect to buffer size B and transmission rate ρ.

11. (new): A method of characterizing the loss curve for a digital traffic source as a function of the buffer size B for a given transmission rate ρ, comprising:

(a) determining a point at which the slope of the loss curve changes in response to transmitting the frames of an actual or simulated traffic source;

(b) computing the loss rate for said point;

(c) repeating steps a and b over the range of buffer sizes B being characterized; and

(d) exploiting piecewise linearity of the loss curve between said loss curve change points to characterize the remainder of the loss curve.

12. (new): A method as recited in claim 11, wherein the loss rate for each value of buffer size B need not be computed in order to characterize the loss curve for a particular transmission rate ρ.

13. (new): A method as recited in claim 11, wherein determining said point at which the slope of said loss curve changes comprises:

finding a loss in a busy period with no prior loss, or a change in the number of busy periods experiencing losses, in response to changes in buffer size B.

14. (new): A method as recited in claim 11, wherein the largest buffer size considered is equal to the corresponding burstiness value $\sigma(\rho)$.

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15. (new): A method as recited in claim 11, wherein the traffic source comprises a data stream selected from the group of data streams consisting of multimedia data streams, elementary video streams, and MPEG-2 transport streams.

16. (new): A method as recited in claim 11, further comprising computing loss curves across a range of given transmission rates ρ, to provide three-dimensional information about loss rates with respect to buffer size B and transmission rate ρ.